

Appendix D

Fish Operations Plan Spill

Introduction:

Each year, the US Army Corps of Engineers (COE) tracks the amount of water spilled over the spill gates of a project for juvenile fish passages, which is referred to as Biological Opinion spill, or FOP spill for short. Since the Fish Operations Plan (FOP) was ordered to be the COE guidance on spill during 2007, the spill that was once called BiOp spill is referred to as FOP spill this year. FOP spill is the hourly spill level as derived from Tables on pages 1 and 2 in the 2007 FOP. This is a maximum spill level and is subject to the following conditions: 1) spill percentage or discharge specified in the FOP, 2) spill caps as set daily for TDG management; 3) test spill levels for fish passage research, 4) minimum generation for power system, navigation and juvenile fish barging.. The hourly target spill may vary as a function of quantity of river flow and generating units available at a project. FOP spill does not include involuntary spill that occurs for flood control or spill because of physical problems with the hydropower system. It also does not include other “miscellaneous” passage of water through a project such as through fish ladders, sluiceways, lockage, etc. This appendix provides an overview of how the FOP spill amounts were calculated, tables of the FOP spill amounts for COE projects on the Lower Columbia and Snake rivers, and graphs of the data.

Overview of Spill calculations

The calculations of FOP spill for juvenile fish passages are based on methods that have been used over the past several years to monitor how well the projects and BPA are implementing juvenile fish spill based on the instructions given to the projects and BPA by the Corps via teletypes. Excel spreadsheets have been developed that display the actual project spill and calculate the spill specified for juvenile fish passage (FOP spill). Both of these values are displayed on a graph so that with a quick glance FOP spill operations can be monitored.

The mathematical functions developed to calculate FOP spill take into consideration the FOP maximum spill levels, the 120% / 115% gas cap in effect, the minimum generation requirements, any major tests that are going on during the spill season, and in some cases the 1% efficiency unit operating requirements. Each project has its own function. The Corps can make these functions available for review. Each year several of the functions are modified to take in to consideration any changes in effect for the current year. These changes are usually due to research ongoing at the project (i.e. the RSW test at Lower Granite) or changes in the target spill amount. Sometimes changes are needed due to changing instructions to the project. For example in 2001 there was a minimum spill level of 15 kcfs set at The Dalles. With respect to short tests at projects, like a three-day spill test or other short-term regulation changes, these functions are not always adjusted.

One item to consider when seeing if the projects and BPA are complying with their instructions is to review how the projects operate the spill gates. The spill gates are opened a set number of stops to provide a specific discharge through that gate. The minimum increment for opening a spill gate is either 1/2 stop or a full stop, which is equivalent to spill discharges of 0.8 - 1.9 kcfs per increment, depending on the project. The projects ability to operate continuously at a stop setting varies due to the changing hydraulic conditions and the speed at which the system can react to these changes. This

means that the project may spill slightly above or below the desired spill volume for periods of time. See the spill patterns in the Fish Passage Plan for examples of this. Also see notes below for changes in this at JDA. Note: starting this year, the day and night spill times was adjusted to reflect Table Bon-6 in the FPP.

Project specific information

In paragraphs below, spill refers to the target spill amount for juvenile fish passage as described in the FOP. The target spill is the desired spill amount. Target spill adjust according to many factors such as spill caps, minimum generation, fish spill patterns and research, and court ordered spill levels. The target spill will be lower than actual spill during involuntary spill otherwise the target spill and actual spill are identical (Figures D-1 through D-8).

Bonneville:

Spill started April 10th at 0001 hours. FOP spring spill was 100 kcfs 24 hours a day. The corner collector was opened March 1st. The corner collector was closed for a few hours on March 29th in order to allow a barge to go into the forebay and off load equipment. Spill bays 1 and/or 18 were opened more than normal for a few minutes on May 16th, May 25 and June 28th in order to flush debris. Spill was turned off for several hours June 24th in order to do a hydro survey in the spilling basin. Summer FOP spill started June 21st at 0001 hours. FOP spill was spill 85 kcfs during daylight hours and spill up to the 120% spill cap at night. The corner collector was shut down August 31st in the afternoon. The daytime spill level was changed to 75 kcfs July 16th. Spill ended September 1 at 0001 hours.

The Dalles

Spill started April 10th at 0001hours. FOP spill was 40% of total outflow 24 hours a day. Spill ended September 1st at 0001 hours.

John Day

Spill started April 10 at 0001 hours. FOP spring spill was 60% of total outflow during night time hours. Night time hours were between 1800 hours and 0600 hours from April 10 to May 14 and between 1900 and 0600 from May 15th to June 30th. The spill level and pattern could be adjusted for short time periods due to navigation concerns. Summer FOP spill started July 1st at 0001 hours. FOP summer spill was 30% of total outflow 24 hours a day. Spill ended September 1st at 0001 hours.

McNary

Spill started April 10 at 0001hours. FOP spring spill was 40% of total outflow 24 hours a day. A spill test consisting of alternating 2 different spill patterns ran from April 15th to June 11th. Summer spill started June 22 at 0600. There was a fish passage and survival test performed at McNary from June 22nd at 600 hours to August 31st with spill alternating between two days of 40% spill for 24hr per day and two days of 60% spill for 24 hours per day. On July 6th spill was reduced in order to determine if reducing spill

would allow safe passage juvenile fish barges. Adjustments to the spill pattern were made to allow for safe navigation. Spill ended September 1st at 0001 hours.

Ice Harbor

Spill started April 3rd at 0001 hours. FOP spill was spill 45 kcfs in the day and up to the 120% gas cap at night. Spill was shut off for several hours April 12th to allow for hydro phone installation. There was a fish survival test performed at Ice Harbor from April 30th to July 16th with spill alternating between two days of spilling 30% of the total project discharge 24 hours a day and two days of spilling to the 120% spill cap during the night and 45 kcfs during the day. Some additional spill occurred August 29th in order to test RSW vibration. Spill ended September 1st at 0001 hours.

The RSW was evaluated through a radio telemetry study in 2007. The tainter gate at spillbay 2 operated either fully open or fully closed. The flow over the RSW was regulated by the project forebay elevation and not by the tainter gate. The flow through the RSW was around 8,400 cfs. Project operations (spill levels and patterns) changed according to a randomized block schedule. Two spill operations included the RSW and varying levels of “training” spill.

Lower Monumental

Spill started April 3rd at 0001 hours. FOP spring spill was spill to the 120% gas cap 24 hours a day. Spill was reduced to 0 for several hours April 11th in order to allow a barge to be repositioned for RSW work. Spill was stopped for several hours April 14th in order to install research equipment. Spill was stopped for 1 hour April 25th so mooring bit could be lowered at the barge loading dock. On May 5th spill was increased to 31.5 kcfs for 4 hours in order to pass juvenile fish. Spill was reduced up to 1 time per day in order to allow juvenile fish barges to be loaded. A spilt spill level (one level at night and another level during the day) was used in parts of June in order to improve TDG gas management. Summer FOP spill started June 21st. The summer spill level was 17.1 kcfs 24 hours a day. Spill ended September 1st at 0001 hours.

Little Goose

Spill started April 3rd at 0001 hours. FOP Spill was spill 30% of total outflow 24 hours a day. Spill was reduced to 0 for several hours April 13th in order to adjust research equipment. From April 29th to May 13th night time spill was increased to spill to the 120% gas cap as agreed to in the FOP. Spill ended September 1st at 0001 hours.

Lower Granite

Spill started April 3rd at 0001 hours. Spring FOP spill was spill 20.4 kcfs using the RSW. A spill test consisting of alternating 2 different spill patterns ran from June 1st to July 11th. Spring spill started June 22 at 0600. Summer FOP spill started June 21st. The summer spill level was 17.1 kcfs using the RSW. The spill pattern could be adjusted if needed for Adjustments to the spill pattern were allowed for safe navigation. Spill ended September 1st at 0001 hours.

The 2007 summer test of the RSW took place. This test occurred between mid-June and late July and ran for 3 or 4 weeks. Radio-telemetry was used to assess RSW performance. Project operations include the RSW (between 6,000 and 7,700 cfs) and some level of training spill, 24 hours per day.

Figure D-1
FOP Spill at Bonneville

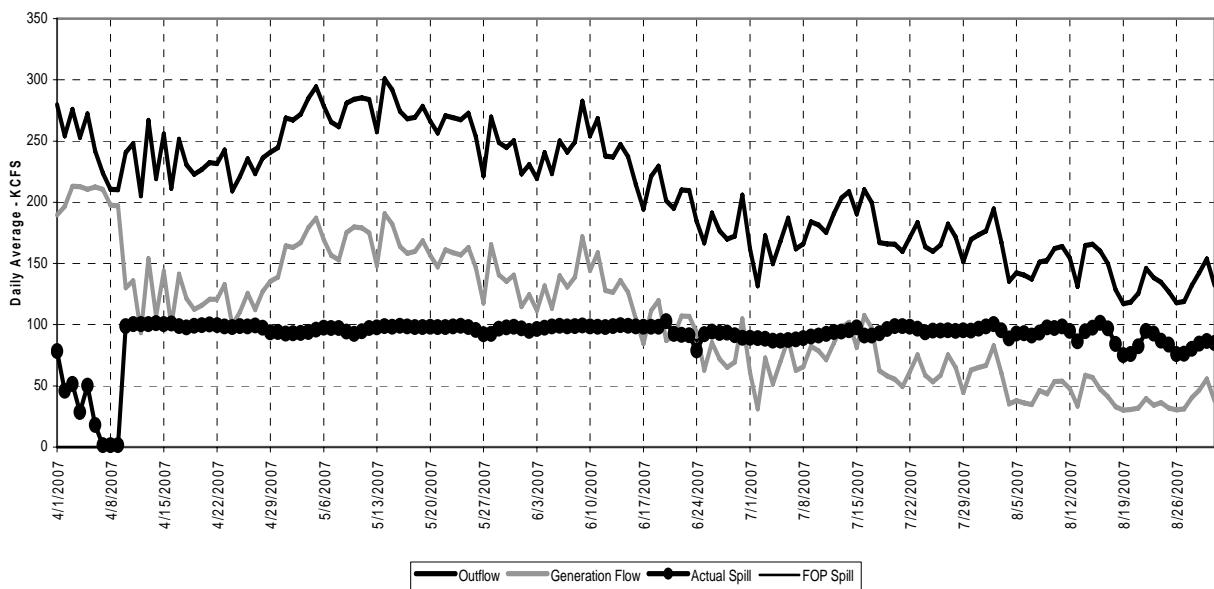


Figure D-2
FOP Spill at The Dalles

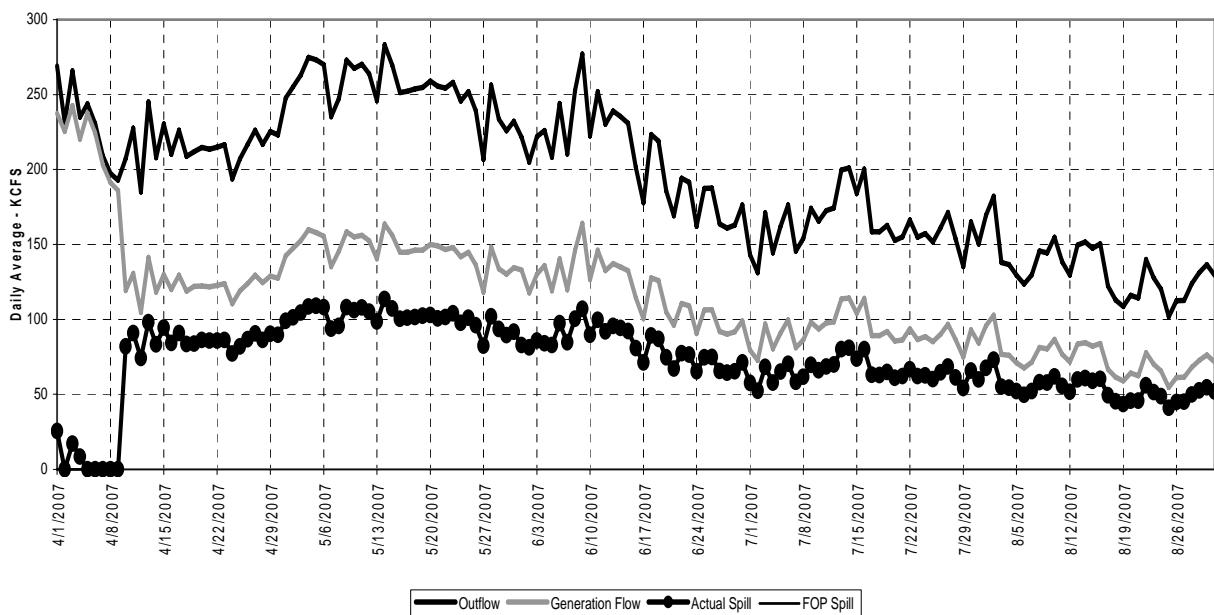


Figure D-3
FOP Spill at John Day

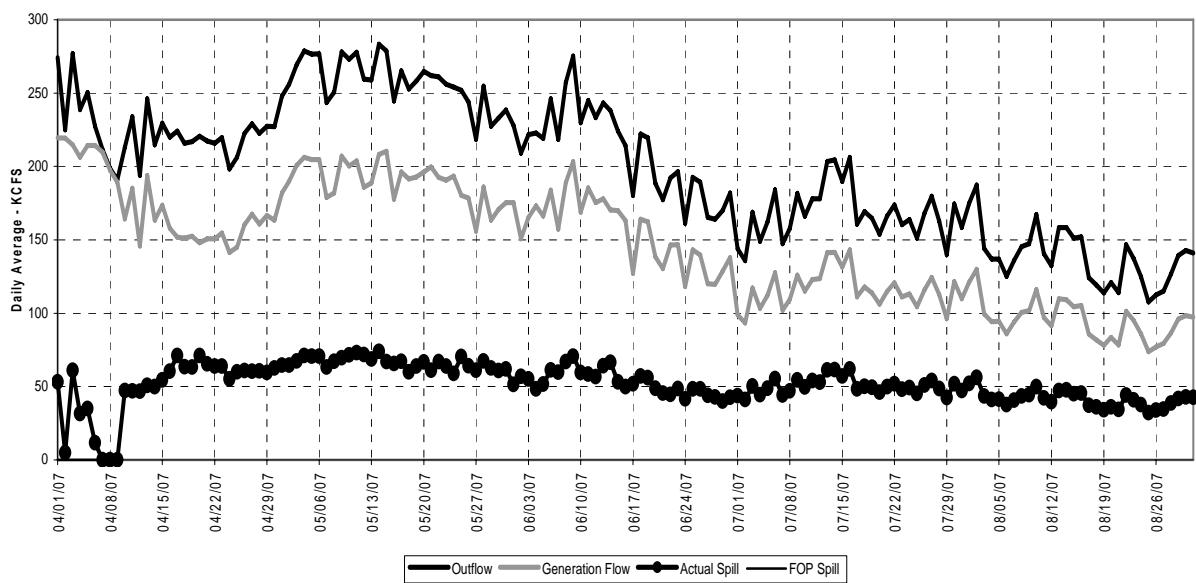


Figure D-4
FOP Spill at McNary

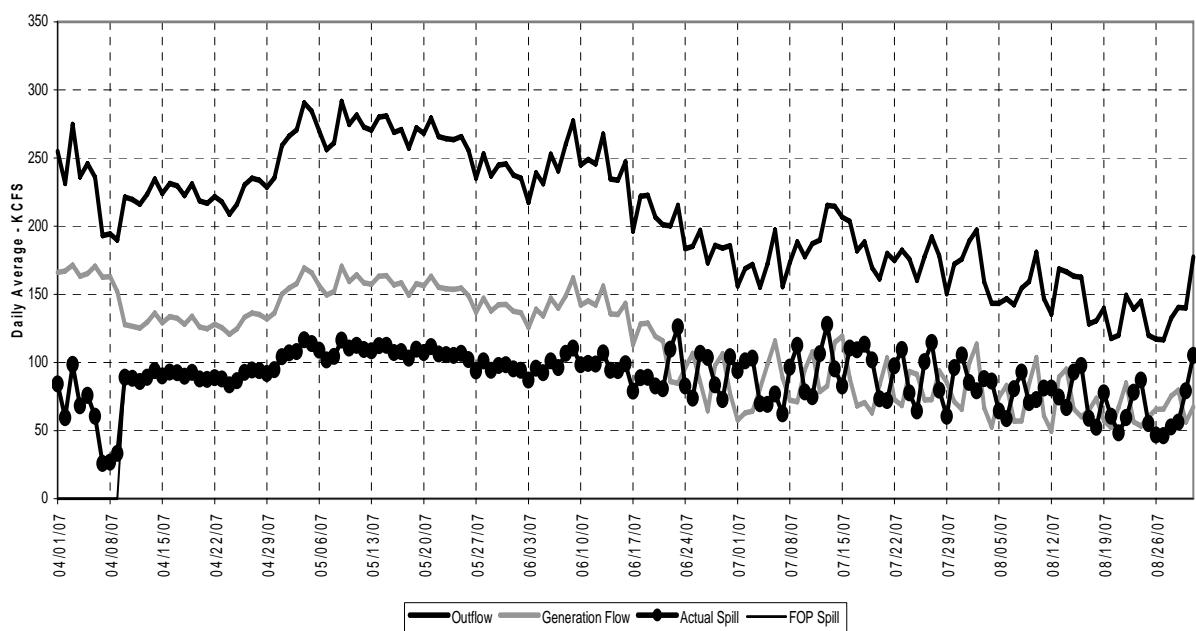


Figure D-5
FOP Spill at Ice Harbor

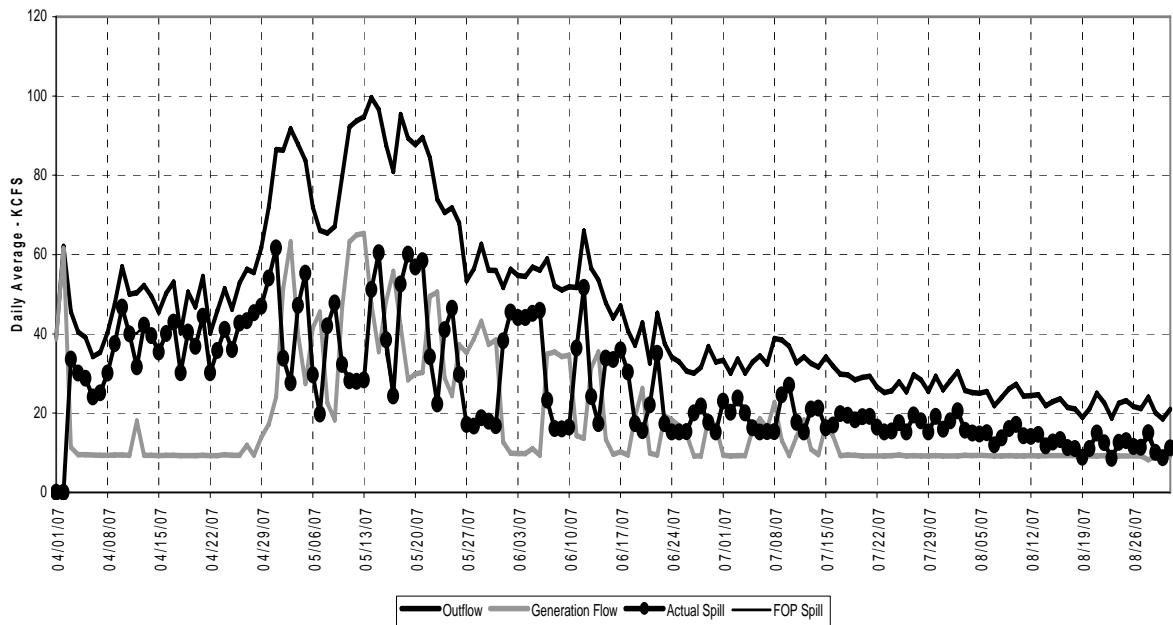


Figure D-6
FOP Spill at Lower Monumental

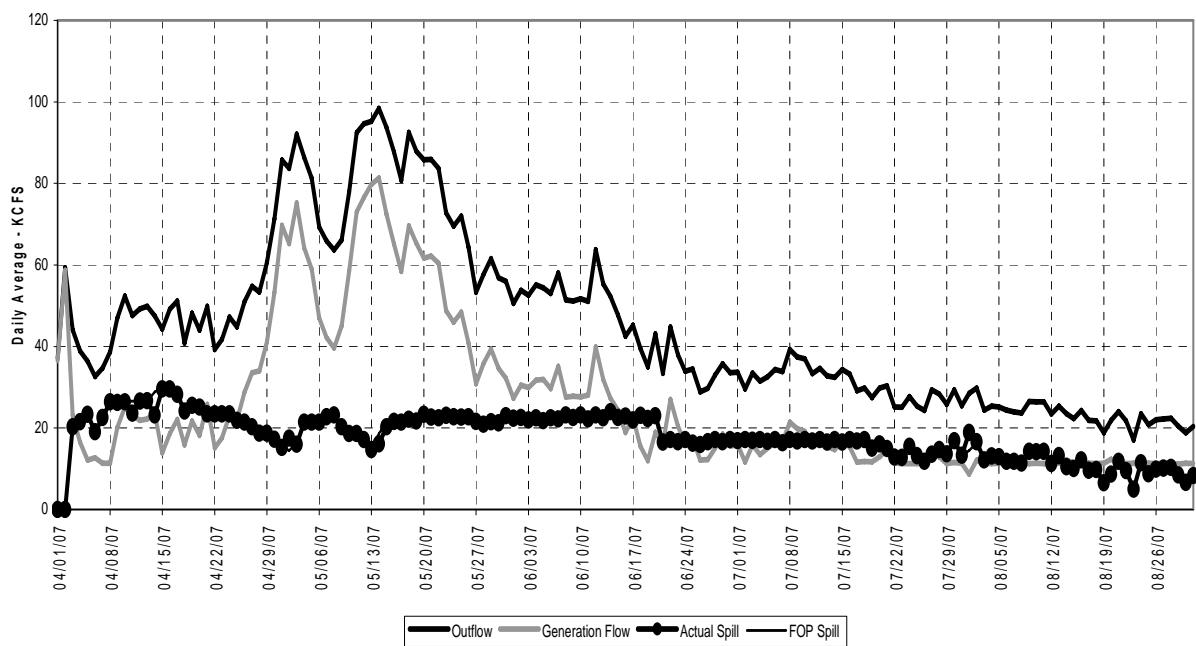


Figure D-7
FOP Spill at Little Goose

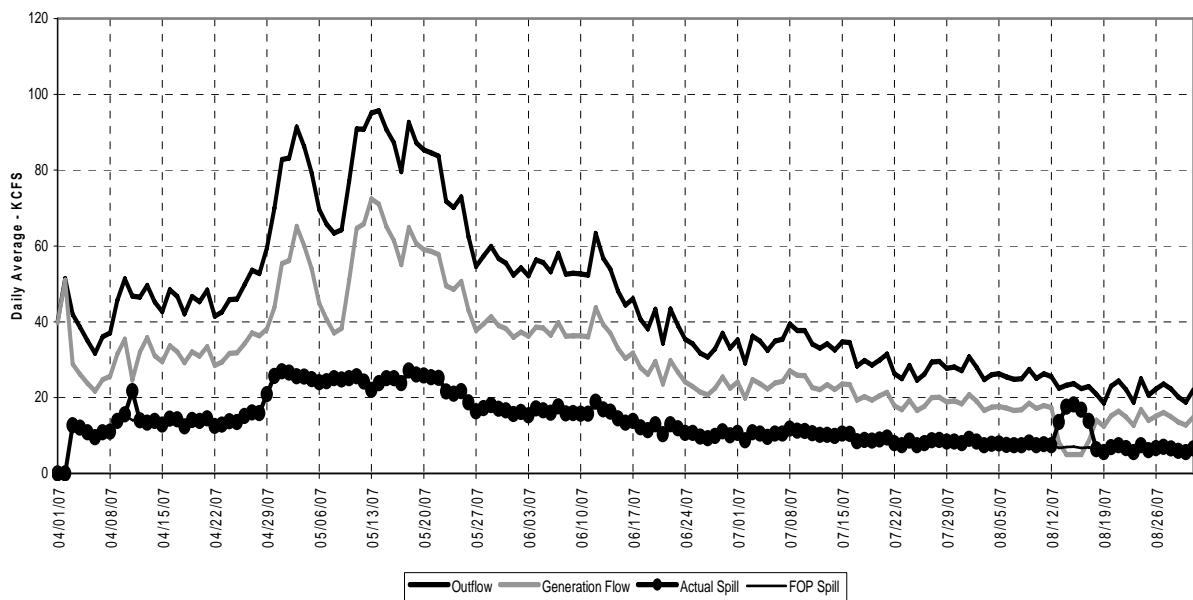


Figure D-8
FOP Spill at Lower Granite

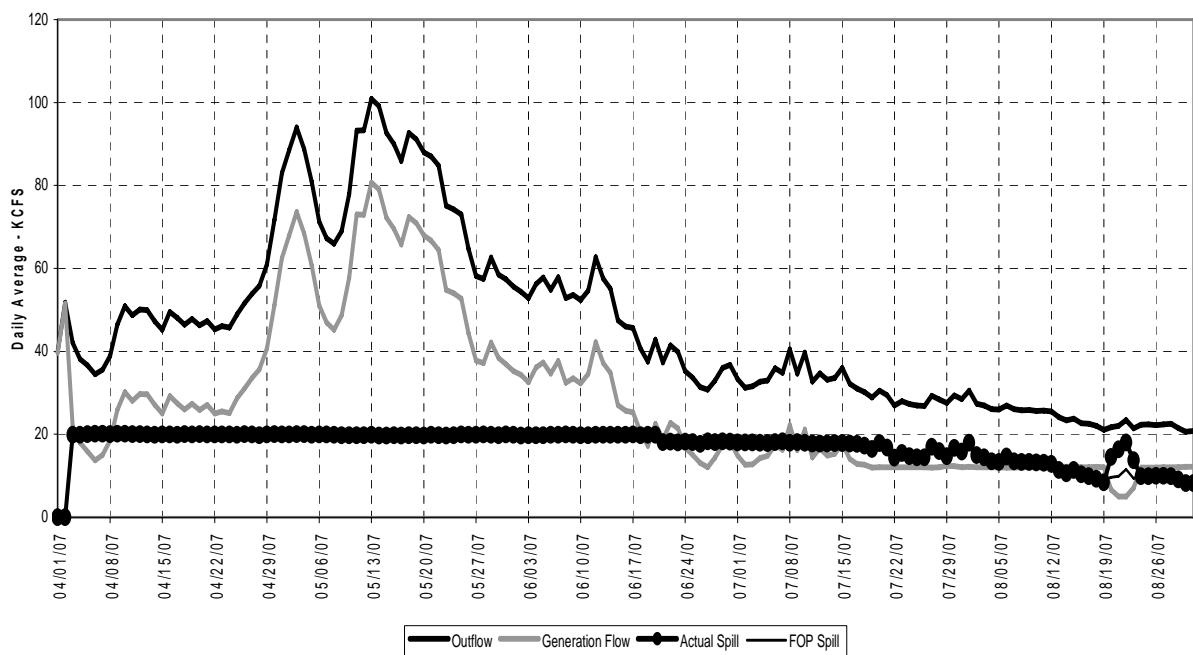


Table D-1

FOP Spill at Bonneville														
Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	279.67	189.69	78.47	0.00	05/22/07	270.69	161.12	98.07	100.00	7/12/2007	190.68	85.10	94.08	93.75
04/02/07	254.02	196.50	45.99	0.00	05/23/07	269.01	158.91	98.61	100.00	7/13/2007	203.46	97.76	94.22	93.75
04/03/07	275.83	212.94	51.40	0.00	05/24/07	267.47	156.98	98.98	100.00	7/14/2007	208.79	102.03	95.24	94.58
04/04/07	252.85	212.78	28.58	0.00	05/25/07	272.70	163.17	98.02	98.17	7/15/2007	190.51	81.14	97.85	96.25
04/05/07	272.25	210.58	50.18	0.00	05/26/07	253.64	146.53	95.59	96.00	7/16/2007	210.26	107.63	91.09	89.58
04/06/07	242.04	212.55	17.98	0.00	05/27/07	221.37	117.71	92.20	92.88	7/17/2007	199.59	97.10	91.00	91.25
04/07/07	223.74	210.66	1.55	0.00	05/28/07	269.45	165.39	92.54	94.33	7/18/2007	166.93	62.35	93.05	92.03
04/08/07	210.56	197.50	1.59	0.00	05/29/07	248.81	140.72	96.59	97.83	7/19/2007	165.97	58.04	96.43	94.57
04/09/07	210.20	197.02	1.68	0.00	05/30/07	244.52	135.33	97.71	100.00	7/20/2007	165.77	55.47	98.80	96.22
04/10/07	240.48	130.07	98.91	100.00	05/31/07	250.29	140.49	98.29	100.00	7/21/2007	159.79	49.51	98.77	96.22
04/11/07	247.91	136.06	100.33	100.00	06/01/07	223.20	114.83	96.86	98.17	7/22/2007	171.17	61.52	98.18	96.09
04/12/07	205.23	93.39	100.34	100.00	06/02/07	230.86	124.55	94.80	96.00	7/23/2007	183.61	75.51	96.63	95.00
04/13/07	266.90	154.10	100.48	100.00	06/03/07	219.43	111.55	96.37	97.42	7/24/2007	163.68	58.57	93.63	92.80
04/14/07	219.48	106.87	101.10	100.00	06/04/07	240.67	131.72	97.46	98.92	7/25/2007	159.98	53.45	95.02	93.67
04/15/07	255.68	143.75	100.43	100.00	06/05/07	223.40	113.37	98.51	100.00	7/26/2007	165.23	58.63	95.10	93.56
04/16/07	211.46	99.05	100.90	100.00	06/06/07	250.25	139.82	98.93	100.00	7/27/2007	182.21	75.30	95.40	93.73
04/17/07	251.60	141.19	98.90	100.00	06/07/07	240.86	130.73	98.64	100.00	7/28/2007	171.54	65.14	94.90	93.75
04/18/07	230.63	121.45	97.70	100.00	06/08/07	249.28	139.00	98.78	100.00	7/29/2007	151.49	44.70	95.30	93.63
04/19/07	222.93	112.50	98.93	100.00	06/09/07	282.60	171.86	99.25	100.00	7/30/2007	169.58	63.07	95.01	94.09
04/20/07	226.86	115.84	99.55	100.00	06/10/07	254.08	144.10	98.46	100.00	7/31/2007	173.35	65.17	96.64	95.32
04/21/07	232.44	120.76	100.18	100.00	06/11/07	268.48	158.79	98.17	100.00	8/1/2007	176.58	66.65	98.40	99.57
04/22/07	231.68	120.70	99.48	100.00	06/12/07	237.54	128.00	98.04	100.00	8/2/2007	194.70	82.88	100.39	99.38
04/23/07	242.81	132.78	98.53	100.00	06/13/07	236.87	126.37	98.66	100.00	8/3/2007	167.25	60.55	95.21	95.40
04/24/07	209.31	99.70	98.12	100.00	06/14/07	247.19	136.12	99.57	100.00	8/4/2007	135.47	35.33	88.65	88.24
04/25/07	220.93	110.58	98.83	100.00	06/15/07	237.18	126.50	99.18	100.00	8/5/2007	142.36	38.08	92.77	92.81
04/26/07	235.60	125.49	98.61	100.00	06/16/07	214.67	104.77	98.41	100.00	8/6/2007	140.53	36.06	92.96	93.16
04/27/07	223.24	112.43	99.32	100.00	06/17/07	194.36	84.55	98.31	100.00	8/7/2007	137.37	34.67	90.96	91.63
04/28/07	236.02	127.13	97.40	97.50	06/18/07	221.20	111.47	98.20	100.00	8/8/2007	151.04	46.14	93.39	94.23
04/29/07	240.83	135.49	93.87	94.00	06/19/07	229.40	119.70	98.21	100.00	8/9/2007	152.76	43.60	97.68	97.70
04/30/07	244.45	139.00	93.90	94.00	06/20/07	201.33	87.01	102.80	100.00	8/10/2007	162.28	53.68	97.20	97.34
05/01/07	268.65	164.49	92.66	94.00	06/21/07	194.79	90.97	92.32	91.25	8/11/2007	163.85	53.95	98.39	98.31
05/02/07	267.27	162.94	92.83	94.00	06/22/07	210.16	106.95	91.70	91.25	8/12/2007	154.16	47.86	94.79	95.16
05/03/07	271.81	167.05	93.25	94.00	06/23/07	209.65	106.87	91.28	91.25	8/13/2007	131.31	33.40	86.41	86.95
05/04/07	284.84	179.30	94.06	94.83	06/24/07	184.45	94.08	78.85	86.88	8/14/2007	164.77	58.62	94.67	94.07
05/05/07	294.35	186.92	95.92	96.92	06/25/07	166.79	63.03	92.25	91.64	8/15/2007	165.76	56.92	97.33	97.18
05/06/07	278.49	169.45	97.52	98.00	06/26/07	191.30	85.62	94.20	92.03	8/16/2007	160.19	47.30	101.39	102.72
05/07/07	265.43	156.73	97.20	98.92	06/27/07	176.63	71.86	93.26	91.25	8/17/2007	149.72	41.29	96.92	97.95
05/08/07	261.49	152.90	97.18	98.17	06/28/07	170.00	64.98	93.51	91.25	8/18/2007	128.49	32.94	84.05	84.67
05/09/07	281.01	175.17	94.35	95.08	06/29/07	172.45	69.52	91.42	90.42	8/19/2007	117.05	30.40	75.15	75.20
05/10/07	284.16	179.82	92.45	94.00	06/30/07	205.84	104.98	89.35	88.75	8/20/2007	118.42	30.86	76.06	75.60
05/11/07	285.19	179.09	94.60	96.17	07/01/07	161.91	61.20	89.20	88.75	8/21/2007	125.67	31.81	82.34	82.70
05/12/07	283.83	175.00	97.33	98.83	07/02/07	131.78	31.28	89.00	88.75	8/22/2007	145.98	39.78	94.71	95.27
05/13/07	257.47	148.12	97.73	100.00	07/03/07	172.57	72.64	88.43	88.00	8/23/2007	138.45	34.14	92.81	92.64
05/14/07	300.97	190.56	98.91	100.00	07/04/07	149.82	51.61	86.71	86.50	8/24/2007	134.76	36.51	86.75	87.74
05/15/07	291.95	182.21	98.23	100.00	07/05/07	168.06	69.72	86.84	86.50	8/25/2007	126.86	31.75	83.61	83.58
05/16/07	274.28	163.77	99.03	100.00	07/06/07	186.98	88.17	87.31	86.50	8/26/2007	118.00	30.60	75.89	75.56
05/17/07	268.17	158.30	98.40	100.00	07/07/07	162.12	62.60	88.00	87.25	8/27/2007	119.00	31.26	76.25	75.72
05/18/07	269.39	159.77	98.12	100.00	07/08/07	165.93	65.59	88.85	88.75	8/28/2007	131.90	40.31	80.09	79.88
05/19/07	278.20	168.67	98.03	100.00	07/09/07	184.12	82.40	90.18	89.58	8/29/2007	142.45	46.52	84.46	84.65
05/20/07	266.06	156.36	98.20	100.00	07/10/07	181.25	78.68	91.09	91.25	8/30/2007	153.76	55.64	86.64	87.23
05/21/07	256.50	147.08	97.88	100.00	07/11/07	175.29	71.44	92.33	92.08	8/31/2007	132.21	38.08	84.94	84.85

Table D-2

FOP Spill at The Dalles														
Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	269.00	237.47	25.48	0.00	05/22/07	254.34	146.51	101.58	101.74	7/12/2007	174.43	98.39	69.78	69.77
04/02/07	231.28	225.23	0.00	0.00	05/23/07	258.10	148.04	103.91	103.24	7/13/2007	199.71	113.51	80.21	79.89
04/03/07	265.78	242.55	17.18	0.00	05/24/07	245.59	141.80	97.59	98.24	7/14/2007	201.09	114.15	80.94	80.44
04/04/07	234.82	220.13	8.52	0.00	05/25/07	251.95	144.85	100.97	100.78	7/15/2007	183.90	104.00	73.78	73.56
04/05/07	243.75	237.70	0.00	0.00	05/26/07	239.30	136.45	96.10	95.72	7/16/2007	200.31	114.00	80.19	80.13
04/06/07	230.61	224.43	0.00	0.00	05/27/07	206.73	118.10	82.41	82.69	7/17/2007	158.47	89.24	63.10	63.39
04/07/07	209.25	203.02	0.00	0.00	05/28/07	256.25	148.28	101.98	102.50	7/18/2007	158.37	89.31	62.83	63.35
04/08/07	197.33	191.28	0.00	0.00	05/29/07	233.62	133.76	93.63	93.45	7/19/2007	162.65	91.90	64.79	65.06
04/09/07	192.80	186.00	0.00	0.00	05/30/07	225.69	130.14	89.37	90.28	7/20/2007	152.70	85.57	60.97	61.08
04/10/07	207.45	119.19	81.97	82.98	05/31/07	232.12	134.46	91.71	91.71	7/21/2007	155.01	86.33	62.20	62.00
04/11/07	227.61	130.69	90.88	91.04	06/01/07	221.58	132.83	82.81	82.58	7/22/2007	166.44	93.68	66.71	66.58
04/12/07	185.00	104.75	74.24	74.00	06/02/07	204.92	117.70	81.18	81.15	7/23/2007	154.85	86.59	62.08	61.94
04/13/07	245.07	141.24	98.13	97.74	06/03/07	222.00	130.10	85.80	85.75	7/24/2007	157.33	88.59	62.50	62.93
04/14/07	207.72	118.22	83.31	83.09	06/04/07	226.02	135.90	84.09	84.55	7/25/2007	151.50	85.24	60.03	60.60
04/15/07	230.43	129.87	94.45	92.17	06/05/07	208.08	119.10	82.93	83.23	7/26/2007	161.06	90.15	64.60	64.42
04/16/07	210.20	120.06	84.12	84.08	06/06/07	243.95	140.38	97.52	97.58	7/27/2007	171.34	96.68	68.47	68.54
04/17/07	226.23	129.47	90.80	90.49	06/07/07	210.43	119.63	84.61	84.17	7/28/2007	153.70	86.53	61.23	61.48
04/18/07	208.70	118.91	83.62	83.48	06/08/07	252.43	145.97	100.36	100.93	7/29/2007	135.28	74.96	54.15	54.11
04/19/07	211.80	121.97	83.78	84.72	06/09/07	277.04	164.00	106.88	106.92	7/30/2007	165.04	93.00	65.80	66.02
04/20/07	214.63	122.26	86.33	85.85	06/10/07	222.31	126.48	89.78	88.92	7/31/2007	150.30	84.29	59.84	60.12
04/21/07	213.44	121.68	85.84	85.38	06/11/07	252.06	146.23	99.67	100.82	8/1/2007	169.58	95.76	67.65	67.83
04/22/07	214.86	122.74	85.90	85.94	06/12/07	230.08	132.38	91.98	92.03	8/2/2007	182.10	102.91	73.00	72.84
04/23/07	216.36	123.86	86.33	86.54	06/13/07	239.03	137.21	95.71	95.61	8/3/2007	137.89	76.62	55.10	55.16
04/24/07	193.71	110.44	77.18	77.49	06/14/07	235.40	135.08	94.21	94.16	8/4/2007	136.61	75.95	54.42	54.65
04/25/07	207.04	119.08	81.94	82.82	06/15/07	230.70	132.45	92.18	91.86	8/5/2007	129.51	71.13	52.15	51.80
04/26/07	216.71	123.87	86.78	86.68	06/16/07	201.38	114.42	80.79	80.55	8/6/2007	123.61	67.68	49.71	49.44
04/27/07	226.28	129.59	90.60	90.51	06/17/07	177.73	100.41	71.15	71.09	8/7/2007	129.73	71.53	52.22	51.89
04/28/07	216.80	124.52	86.18	86.72	06/18/07	223.19	127.77	89.20	89.28	8/8/2007	145.62	81.26	57.95	58.25
04/29/07	225.41	128.90	90.39	90.16	06/19/07	219.08	125.97	86.99	87.63	8/9/2007	144.33	80.32	57.84	57.73
04/30/07	223.09	127.38	89.57	89.24	06/20/07	185.84	104.98	74.56	74.34	8/10/2007	154.79	86.74	61.83	61.92
05/01/07	247.60	142.53	98.94	97.88	06/21/07	169.10	95.99	67.06	67.64	8/11/2007	138.35	76.66	55.47	55.34
05/02/07	255.05	147.57	101.30	101.46	06/22/07	194.05	110.73	77.33	77.62	8/12/2007	129.51	71.64	51.63	51.81
05/03/07	262.94	152.48	104.41	105.18	06/23/07	191.51	108.94	76.52	76.60	8/13/2007	149.53	83.55	59.82	59.81
05/04/07	274.70	159.89	108.65	109.15	06/24/07	162.00	90.48	65.40	64.80	8/14/2007	151.50	84.54	60.83	59.23
05/05/07	273.23	158.06	109.04	109.15	06/25/07	187.26	106.27	74.68	74.90	8/15/2007	147.57	82.08	59.07	59.03
05/06/07	269.95	155.57	108.20	107.95	06/26/07	187.62	106.53	74.99	75.05	8/16/2007	150.43	84.00	60.25	60.17
05/07/07	235.09	135.10	93.81	93.67	06/27/07	163.74	91.98	65.66	65.50	8/17/2007	122.17	66.75	49.32	48.87
05/08/07	247.10	145.48	95.59	95.87	06/28/07	160.94	90.20	64.50	64.38	8/18/2007	112.92	61.43	45.30	45.17
05/09/07	272.99	158.47	108.15	108.44	06/29/07	163.02	91.64	65.31	65.21	8/19/2007	108.57	59.03	43.40	43.43
05/10/07	267.34	155.06	106.04	106.90	06/30/07	176.35	98.95	71.28	70.54	8/20/2007	116.10	64.22	45.75	46.44
05/11/07	270.18	156.11	107.90	108.07	07/01/07	143.15	79.51	57.52	57.26	8/21/2007	114.20	62.48	45.67	45.68
05/12/07	263.90	152.45	105.22	105.56	07/02/07	131.11	72.69	52.37	52.44	8/22/2007	140.09	77.79	55.93	56.04
05/13/07	245.77	140.45	98.48	98.11	07/03/07	171.18	96.88	68.38	68.47	8/23/2007	127.63	70.01	51.36	51.05
05/14/07	283.18	163.59	113.48	113.27	07/04/07	144.29	80.44	57.80	57.72	8/24/2007	120.22	65.47	48.73	48.09
05/15/07	269.44	156.05	107.16	107.78	07/05/07	161.90	90.77	65.15	64.76	8/25/2007	101.71	54.55	41.03	40.68
05/16/07	251.35	144.73	100.38	100.54	07/06/07	176.31	99.80	70.33	70.52	8/26/2007	112.36	61.25	44.89	44.95
05/17/07	252.13	144.88	101.09	100.60	07/07/07	145.36	81.11	58.34	58.14	8/27/2007	112.62	61.43	45.14	45.05
05/18/07	253.87	146.18	101.57	101.55	07/08/07	154.17	86.21	61.78	61.67	8/28/2007	123.83	68.08	49.75	49.53
05/19/07	254.76	146.13	102.42	101.91	07/09/07	174.07	98.18	69.75	69.63	8/29/2007	131.19	72.50	52.50	52.48
05/20/07	259.06	150.08	102.94	103.04	07/10/07	165.55	93.44	66.05	66.22	8/30/2007	136.62	76.20	54.70	54.65
05/21/07	255.56	149.14	100.51	100.33	07/11/07	172.45	97.60	68.60	68.98	8/31/2007	129.48	71.66	51.89	51.79

Table D-3
FOP Spill at John Day

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	274.12	219.55	53.20	0.00	05/22/07	261.08	192.73	66.90	67.21	7/12/2007	177.93	123.54	52.91	53.38
04/02/07	225.10	219.28	4.74	0.00	05/23/07	255.96	190.69	63.83	63.84	7/13/2007	203.30	141.21	61.17	60.99
04/03/07	277.03	214.62	61.08	0.00	05/24/07	254.08	193.48	58.83	59.56	7/14/2007	204.34	141.56	61.42	61.30
04/04/07	238.83	206.11	31.43	0.00	05/25/07	251.85	180.36	70.35	70.49	7/15/2007	189.78	131.50	57.13	56.93
04/05/07	250.45	214.21	35.02	0.00	05/26/07	244.05	178.50	64.04	64.86	7/16/2007	206.12	143.28	61.83	61.84
04/06/07	227.44	214.38	11.67	0.00	05/27/07	218.51	155.93	61.06	61.68	7/17/2007	160.50	110.98	48.38	48.15
04/07/07	211.36	209.70	0.00	0.00	05/28/07	254.75	186.05	67.43	67.54	7/18/2007	169.19	117.75	50.15	50.76
04/08/07	198.84	197.55	0.00	0.00	05/29/07	227.32	163.39	62.55	62.59	7/19/2007	164.67	113.72	49.44	49.40
04/09/07	190.88	189.43	0.00	0.00	05/30/07	233.13	170.82	60.85	60.60	7/20/2007	153.61	106.12	46.18	46.08
04/10/07	212.88	164.31	47.27	47.20	05/31/07	238.64	175.27	61.93	62.25	7/21/2007	166.26	114.70	49.94	49.88
04/11/07	233.96	185.30	47.04	47.20	06/01/07	227.98	175.38	51.30	51.26	7/22/2007	173.81	120.63	51.78	52.14
04/12/07	193.90	145.94	46.75	47.20	06/02/07	208.97	150.73	56.86	57.35	7/23/2007	160.32	111.01	48.07	48.10
04/13/07	246.24	194.02	50.71	48.40	06/03/07	221.63	165.28	55.12	55.13	7/24/2007	163.79	113.01	49.18	49.14
04/14/07	214.73	163.28	49.85	50.66	06/04/07	222.80	173.21	48.23	49.67	7/25/2007	151.08	104.33	45.28	45.33
04/15/07	229.62	173.69	54.51	54.40	06/05/07	219.16	166.16	51.71	51.94	7/26/2007	168.18	115.95	50.86	50.45
04/16/07	219.95	157.95	60.40	60.91	06/06/07	246.28	183.87	61.18	61.25	7/27/2007	179.83	124.49	54.11	53.95
04/17/07	224.12	151.69	71.05	70.42	06/07/07	218.36	157.14	59.76	59.62	7/28/2007	162.60	112.67	48.54	48.78
04/18/07	215.79	151.10	63.32	63.11	06/08/07	257.13	189.02	67.00	66.56	7/29/2007	140.04	96.20	42.38	42.01
04/19/07	216.98	152.32	63.26	64.84	06/09/07	275.24	203.26	70.54	70.94	7/30/2007	174.53	121.50	51.88	52.36
04/20/07	220.55	148.03	71.07	71.27	06/10/07	229.75	168.82	59.55	60.37	7/31/2007	158.23	109.68	47.15	47.47
04/21/07	217.31	150.68	65.34	65.43	06/11/07	245.20	185.50	58.38	58.88	8/1/2007	174.84	121.19	52.11	52.45
04/22/07	215.83	150.62	63.89	63.72	06/12/07	233.37	175.45	56.62	57.46	8/2/2007	187.49	129.83	56.22	56.25
04/23/07	219.85	154.56	63.92	62.40	06/13/07	243.35	177.88	64.08	64.44	8/3/2007	144.11	99.47	43.43	43.23
04/24/07	198.26	141.48	55.20	55.38	06/14/07	238.08	170.24	66.39	66.47	8/4/2007	136.83	94.30	41.06	41.05
04/25/07	206.14	145.07	59.85	60.00	06/15/07	224.15	169.96	53.10	52.97	8/5/2007	136.87	94.41	41.23	41.06
04/26/07	222.53	160.35	60.89	60.00	06/16/07	214.24	163.02	49.85	49.77	8/6/2007	125.10	85.95	37.62	37.53
04/27/07	229.19	167.45	60.44	60.00	06/17/07	180.18	126.95	51.78	51.76	8/7/2007	135.93	93.96	40.65	40.78
04/28/07	222.59	160.75	60.48	60.00	06/18/07	222.25	163.99	57.05	57.52	8/8/2007	145.39	100.50	43.55	43.62
04/29/07	227.43	166.65	59.50	60.00	06/19/07	219.46	162.29	55.95	56.12	8/9/2007	147.45	101.60	44.48	44.23
04/30/07	227.23	163.32	62.62	62.00	06/20/07	188.58	138.41	48.86	49.60	8/10/2007	167.18	116.15	49.87	50.15
05/01/07	248.00	182.03	64.52	64.00	06/21/07	177.35	130.41	45.50	45.04	8/11/2007	140.70	97.05	42.19	42.21
05/02/07	255.98	190.05	64.61	64.00	06/22/07	192.16	146.41	44.61	44.43	8/12/2007	132.40	91.41	39.53	39.72
05/03/07	269.40	200.63	67.40	67.20	06/23/07	196.51	146.78	48.52	48.23	8/13/2007	158.22	109.71	47.13	47.47
05/04/07	278.87	206.30	71.12	70.80	06/24/07	161.18	118.10	41.56	41.46	8/14/2007	158.25	109.03	47.72	47.44
05/05/07	276.68	204.64	70.60	71.20	06/25/07	192.65	143.18	48.36	48.33	8/15/2007	151.00	104.34	45.15	45.30
05/06/07	276.82	204.57	70.65	70.66	06/26/07	189.33	139.81	48.43	48.92	8/16/2007	152.08	105.26	45.51	45.62
05/07/07	243.65	178.91	63.30	63.40	06/27/07	165.26	120.01	43.95	43.96	8/17/2007	124.27	85.75	37.23	37.28
05/08/07	250.59	181.99	67.15	67.45	06/28/07	163.93	119.55	42.91	43.05	8/18/2007	119.17	81.70	36.10	35.75
05/09/07	278.05	207.08	69.45	72.00	06/29/07	169.86	128.67	40.01	38.14	8/19/2007	113.68	78.17	34.19	34.10
05/10/07	273.13	200.26	71.45	72.00	06/30/07	182.02	137.91	42.72	43.79	8/20/2007	120.98	83.58	36.09	36.29
05/11/07	277.98	203.70	72.93	72.80	07/01/07	143.82	98.74	43.79	43.15	8/21/2007	114.00	78.33	34.30	34.20
05/12/07	259.56	185.90	71.83	72.14	07/02/07	135.73	93.41	41.15	40.72	8/22/2007	146.79	101.24	44.11	44.04
05/13/07	258.98	188.78	68.75	67.89	07/03/07	168.86	117.20	50.36	50.66	8/23/2007	137.38	95.10	40.97	41.22
05/14/07	283.29	208.10	73.80	74.00	07/04/07	148.95	103.31	44.28	44.69	8/24/2007	124.78	85.86	37.70	37.43
05/15/07	278.73	210.35	67.00	67.51	07/05/07	162.28	112.19	48.67	48.69	8/25/2007	107.60	73.78	32.25	32.28
05/16/07	244.65	177.64	65.51	65.79	07/06/07	184.06	127.71	55.26	55.22	8/26/2007	112.47	77.00	33.92	33.74
05/17/07	265.13	196.34	67.19	66.98	07/07/07	147.35	101.91	44.22	44.21	8/27/2007	115.09	79.30	34.49	34.53
05/18/07	252.77	191.63	59.92	60.79	07/08/07	157.66	109.35	47.10	47.30	8/28/2007	126.75	86.67	38.71	38.03
05/19/07	258.25	192.78	63.88	65.69	07/09/07	181.75	125.99	54.46	54.53	8/29/2007	139.20	96.03	41.82	41.76
05/20/07	264.85	196.37	66.74	66.87	07/10/07	165.96	114.92	49.70	49.79	8/30/2007	142.68	98.45	42.80	42.81
05/21/07	262.05	199.65	61.10	61.74	07/11/07	178.06	122.78	54.02	53.42	8/31/2007	140.97	97.28	42.54	42.29

Table D-4

FOP Spill at McNary

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	254.87	166.07	84.11	0.00	05/22/07	265.91	154.99	106.21	106.37	7/12/2007	189.70	78.52	106.50	106.62
04/02/07	231.38	167.17	59.50	0.00	05/23/07	264.38	154.01	105.67	105.75	7/13/2007	215.20	82.61	127.90	127.84
04/03/07	274.75	171.45	98.43	0.00	05/24/07	263.56	153.67	105.18	105.42	7/14/2007	214.45	114.69	95.04	95.03
04/04/07	236.10	163.16	68.23	0.00	05/25/07	265.90	154.57	106.63	106.36	7/15/2007	206.74	119.44	82.61	82.70
04/05/07	245.89	165.40	75.79	0.00	05/26/07	255.70	148.88	102.12	102.28	7/16/2007	203.49	88.29	110.50	110.58
04/06/07	235.90	170.72	60.49	0.00	05/27/07	235.22	136.83	93.68	94.09	7/17/2007	181.98	68.13	109.11	109.19
04/07/07	193.02	162.57	25.75	0.00	05/28/07	252.95	147.16	101.08	101.18	7/18/2007	188.63	70.63	113.30	113.10
04/08/07	194.35	162.90	26.73	0.00	05/29/07	236.62	137.65	94.25	94.65	7/19/2007	169.64	63.04	101.89	101.79
04/09/07	189.75	151.98	33.10	0.00	05/30/07	244.82	142.36	97.74	97.93	7/20/2007	161.28	83.41	73.16	73.03
04/10/07	221.46	127.68	89.09	88.58	05/31/07	245.60	142.60	98.30	98.24	7/21/2007	179.98	103.22	72.06	71.99
04/11/07	219.52	126.55	88.27	87.81	06/01/07	237.54	137.61	95.23	95.02	7/22/2007	174.70	72.61	97.41	97.56
04/12/07	216.08	125.32	86.08	86.43	06/02/07	235.31	136.53	94.08	94.13	7/23/2007	182.31	68.24	109.38	109.39
04/13/07	223.54	129.70	89.13	89.42	06/03/07	217.23	125.62	86.91	86.89	7/24/2007	175.70	93.45	77.55	77.37
04/14/07	234.74	136.25	93.79	93.89	06/04/07	239.41	139.03	95.70	95.77	7/25/2007	160.20	91.30	64.20	64.08
04/15/07	223.88	129.10	90.10	89.55	06/05/07	231.18	134.07	92.42	92.47	7/26/2007	177.62	72.39	100.53	100.78
04/16/07	231.25	133.72	92.83	92.50	06/06/07	252.74	147.10	100.93	101.10	7/27/2007	192.03	72.68	114.62	114.58
04/17/07	229.57	132.46	92.39	91.83	06/07/07	240.68	139.89	96.07	96.27	7/28/2007	178.19	93.85	79.65	79.37
04/18/07	222.39	127.94	89.77	88.96	06/08/07	260.29	148.86	106.73	104.12	7/29/2007	150.63	85.51	60.41	60.25
04/19/07	231.23	134.00	92.54	92.49	06/09/07	277.33	162.20	110.43	110.93	7/30/2007	172.14	71.23	96.21	96.06
04/20/07	218.52	125.94	87.86	87.41	06/10/07	244.85	142.03	98.13	97.94	7/31/2007	175.66	65.65	105.28	105.40
04/21/07	216.85	124.73	87.43	86.74	06/11/07	249.07	145.08	99.27	99.63	8/1/2007	189.09	99.11	85.28	85.43
04/22/07	221.67	128.08	88.88	88.67	06/12/07	245.65	142.17	98.77	98.26	8/2/2007	197.08	113.42	78.96	78.83
04/23/07	217.76	125.41	87.65	87.10	06/13/07	267.56	156.05	106.81	107.02	8/3/2007	159.19	66.55	87.95	88.12
04/24/07	208.67	120.55	83.41	83.47	06/14/07	234.70	135.82	94.17	93.88	8/4/2007	143.45	52.55	86.20	86.07
04/25/07	215.97	124.69	86.58	86.39	06/15/07	233.76	135.25	93.79	93.51	8/5/2007	143.46	74.56	64.19	64.09
04/26/07	230.48	133.10	92.68	92.19	06/16/07	247.18	143.45	99.04	98.87	8/6/2007	146.56	83.23	58.62	58.63
04/27/07	235.28	136.12	94.46	94.11	06/17/07	196.45	112.89	78.90	78.58	8/7/2007	142.35	56.98	80.69	80.64
04/28/07	233.60	135.10	93.80	93.44	06/18/07	221.90	128.42	88.78	88.76	8/8/2007	154.69	57.24	92.76	92.81
04/29/07	228.52	131.88	91.94	91.41	06/19/07	222.69	128.91	89.12	89.08	8/9/2007	159.40	84.37	70.35	70.59
04/30/07	235.39	136.15	94.54	94.16	06/20/07	206.64	119.18	82.75	82.65	8/10/2007	180.98	103.64	72.64	72.39
05/01/07	259.20	150.35	104.13	103.68	06/21/07	200.98	115.72	80.54	80.39	8/11/2007	146.89	61.06	81.14	81.02
05/02/07	266.13	154.61	106.84	106.45	06/22/07	200.25	85.97	109.57	109.32	8/12/2007	135.35	49.58	81.07	81.21
05/03/07	270.55	157.91	107.96	108.22	06/23/07	215.40	84.75	125.93	125.85	8/13/2007	168.56	89.30	74.55	74.56
05/04/07	290.45	169.30	116.46	116.18	06/24/07	183.34	95.99	82.65	82.75	8/14/2007	166.61	95.13	66.78	66.65
05/05/07	284.39	165.93	113.77	113.75	06/25/07	185.24	106.73	73.83	74.10	8/15/2007	163.25	65.72	92.84	92.54
05/06/07	269.86	156.35	108.81	107.95	06/26/07	196.86	85.63	106.52	107.02	8/16/2007	162.51	60.15	97.67	97.51
05/07/07	256.07	149.51	101.83	102.43	06/27/07	172.86	64.61	103.57	103.71	8/17/2007	128.40	64.85	58.87	58.13
05/08/07	261.16	152.14	104.32	104.46	06/28/07	185.98	97.77	83.50	83.14	8/18/2007	130.61	73.66	52.25	52.25
05/09/07	291.63	170.58	116.34	116.65	06/29/07	183.85	106.44	72.70	73.54	8/19/2007	139.85	57.52	77.63	77.61
05/10/07	274.66	159.40	110.55	109.87	06/30/07	185.70	76.96	104.05	104.06	8/20/2007	117.50	52.28	60.52	60.74
05/11/07	281.51	164.35	112.45	112.60	07/01/07	156.13	57.64	93.80	93.68	8/21/2007	119.81	66.98	48.14	47.92
05/12/07	272.61	158.53	109.38	109.04	07/02/07	168.83	62.98	101.15	101.20	8/22/2007	149.23	84.97	59.55	59.69
05/13/07	270.31	157.33	108.30	108.12	07/03/07	171.88	64.21	102.98	103.13	8/23/2007	139.13	56.50	77.94	77.61
05/14/07	280.21	163.19	112.32	112.08	07/04/07	155.08	80.84	69.55	69.54	8/24/2007	144.93	53.25	86.95	86.96
05/15/07	280.94	163.84	112.40	112.38	07/05/07	172.51	98.74	69.09	69.00	8/25/2007	119.92	60.22	55.00	55.21
05/16/07	268.80	156.90	107.21	107.52	07/06/07	197.29	115.77	76.81	78.92	8/26/2007	117.01	65.51	46.79	46.80
05/17/07	271.04	158.34	108.02	108.42	07/07/07	155.59	88.63	62.26	62.24	8/27/2007	116.68	65.75	46.23	46.67
05/18/07	257.04	149.28	103.06	102.82	07/08/07	173.23	72.10	96.43	96.51	8/28/2007	132.43	75.18	52.53	52.97
05/19/07	272.30	157.86	109.72	108.92	07/09/07	188.42	71.25	112.47	112.75	8/29/2007	140.33	79.51	56.12	56.13
05/20/07	268.18	156.34	107.15	107.27	07/10/07	177.54	94.59	78.26	78.13	8/30/2007	139.93	56.13	79.10	78.86
05/21/07	279.45	163.35	111.43	111.78	07/11/07	187.35	107.83	74.80	74.94	8/31/2007	177.28	67.42	105.17	105.46

Table D-5

FOP Spill at Ice Harbor														
Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	39.27	38.77	0.00	0.00	05/22/07	84.44	49.47	34.22	33.98	7/12/2007	34.18	18.26	15.20	15.20
04/02/07	62.10	61.53	0.00	0.00	05/23/07	73.93	50.60	22.35	22.18	7/13/2007	32.57	10.88	21.01	21.03
04/03/07	45.58	11.33	33.61	33.88	05/24/07	70.59	28.82	41.01	40.64	7/14/2007	31.68	9.50	21.23	21.22
04/04/07	40.47	9.57	30.09	30.07	05/25/07	71.79	24.43	46.42	46.18	7/15/2007	34.22	17.05	16.23	16.19
04/05/07	39.09	9.52	28.73	28.75	05/26/07	67.99	37.30	29.70	29.83	7/16/2007	31.80	14.14	16.99	16.90
04/06/07	34.30	9.45	24.05	24.00	05/27/07	53.34	35.25	17.16	17.17	7/17/2007	29.82	9.24	19.88	19.75
04/07/07	35.35	9.33	25.13	24.97	05/28/07	56.40	38.74	16.71	16.97	7/18/2007	29.62	9.45	19.44	19.40
04/08/07	40.32	9.40	30.10	30.00	05/29/07	62.66	43.19	18.80	18.80	7/19/2007	28.45	9.40	18.32	18.28
04/09/07	47.56	9.43	37.50	37.45	05/30/07	56.05	37.30	17.93	17.94	7/20/2007	29.05	9.17	19.06	18.87
04/10/07	56.91	9.48	46.69	46.58	05/31/07	55.99	38.49	16.76	16.80	7/21/2007	29.30	9.18	19.11	18.96
04/11/07	50.04	9.38	39.98	39.86	06/01/07	51.68	12.70	38.18	37.98	7/22/2007	26.57	9.15	16.45	16.27
04/12/07	50.39	17.98	31.64	40.13	06/02/07	56.36	9.87	45.50	45.33	7/23/2007	25.16	9.16	15.20	15.20
04/13/07	52.26	9.33	42.16	42.07	06/03/07	54.75	9.83	44.12	44.02	7/24/2007	25.63	9.30	15.47	15.43
04/14/07	49.50	9.36	39.53	39.41	06/04/07	54.53	9.79	44.11	44.05	7/25/2007	27.91	9.43	17.54	17.54
04/15/07	45.45	9.31	35.45	35.26	06/05/07	56.83	10.98	45.11	44.96	7/26/2007	25.40	9.20	15.20	15.20
04/16/07	50.18	9.34	40.04	39.88	06/06/07	56.05	9.33	45.90	45.75	7/27/2007	29.64	9.27	19.51	19.45
04/17/07	53.08	9.36	42.98	42.71	06/07/07	58.92	34.88	23.23	23.21	7/28/2007	28.45	9.22	18.05	17.93
04/18/07	40.25	9.27	30.15	29.93	06/08/07	52.10	35.38	16.12	15.63	7/29/2007	25.43	9.22	15.20	15.20
04/19/07	50.52	9.30	40.41	40.22	06/09/07	51.08	34.27	16.01	16.21	7/30/2007	29.33	9.23	19.18	19.01
04/20/07	46.81	9.28	36.79	36.59	06/10/07	51.83	34.64	16.43	16.48	7/31/2007	25.85	9.16	15.93	15.90
04/21/07	54.48	9.37	44.43	43.68	06/11/07	51.72	14.34	36.38	36.57	8/1/2007	28.13	9.16	17.99	17.76
04/22/07	40.17	9.27	30.20	29.97	06/12/07	65.98	13.63	51.65	51.45	8/2/2007	30.55	9.15	20.58	20.23
04/23/07	45.82	9.31	35.74	35.55	06/13/07	56.54	31.50	24.18	24.19	8/3/2007	25.73	9.35	15.67	15.51
04/24/07	51.40	9.57	41.10	40.98	06/14/07	53.65	35.41	17.35	17.37	8/4/2007	25.22	9.31	14.99	14.80
04/25/07	46.16	9.33	36.03	35.74	06/15/07	47.83	13.38	33.82	33.94	8/5/2007	25.04	9.35	14.68	14.54
04/26/07	52.80	9.32	42.71	42.53	06/16/07	43.98	9.65	33.51	33.66	8/6/2007	25.44	9.30	15.08	14.88
04/27/07	56.30	11.91	43.32	43.20	06/17/07	47.03	10.21	35.99	36.07	8/7/2007	21.90	9.19	12.03	11.72
04/28/07	55.45	9.40	45.31	45.07	06/18/07	40.74	9.49	30.38	30.37	8/8/2007	23.96	9.18	13.74	13.42
04/29/07	61.73	13.93	47.00	46.65	06/19/07	37.07	19.06	17.30	17.27	8/9/2007	26.18	9.24	16.10	15.83
04/30/07	72.10	17.22	54.07	53.66	06/20/07	42.73	26.23	15.57	15.54	8/10/2007	27.28	9.23	17.17	16.90
05/01/07	86.49	24.11	61.68	61.23	06/21/07	32.61	9.85	22.02	21.87	8/11/2007	24.36	9.21	14.22	13.93
05/02/07	86.34	51.53	33.89	34.12	06/22/07	45.19	9.49	35.04	35.02	8/12/2007	24.38	9.25	14.13	13.87
05/03/07	91.71	63.21	27.63	27.51	06/23/07	37.55	19.36	17.29	17.31	8/13/2007	24.63	9.23	14.64	14.37
05/04/07	87.82	39.93	47.13	46.70	06/24/07	34.13	18.26	15.23	15.20	8/14/2007	21.85	9.25	11.72	11.47
05/05/07	83.74	27.47	55.26	55.05	06/25/07	32.95	16.90	15.23	15.20	8/15/2007	22.88	9.24	12.70	12.44
05/06/07	71.95	41.56	29.63	29.74	06/26/07	30.61	14.65	15.30	15.20	8/16/2007	23.63	9.28	13.29	13.07
05/07/07	66.10	45.45	19.76	19.92	06/27/07	30.07	9.19	20.07	19.87	8/17/2007	21.44	9.25	11.30	11.05
05/08/07	65.42	22.55	41.99	41.86	06/28/07	31.62	9.18	21.75	21.47	8/18/2007	21.08	9.23	11.00	10.73
05/09/07	67.08	18.29	47.78	47.52	06/29/07	36.80	18.53	17.67	17.60	8/19/2007	18.85	9.20	8.80	8.50
05/10/07	79.68	46.50	32.28	32.34	06/30/07	32.85	16.73	15.23	15.20	8/20/2007	21.05	9.14	11.03	10.68
05/11/07	92.20	63.20	28.13	27.66	07/01/07	33.33	9.35	23.01	22.81	8/21/2007	25.01	9.19	15.00	14.69
05/12/07	93.75	64.98	28.01	28.12	07/02/07	30.11	9.23	20.18	19.90	8/22/2007	22.55	9.25	12.48	12.22
05/13/07	94.75	65.37	28.37	28.42	07/03/07	33.66	9.23	23.75	23.48	8/23/2007	18.68	9.34	8.61	8.45
05/14/07	99.62	47.66	51.14	50.77	07/04/07	30.06	9.24	20.03	19.77	8/24/2007	22.45	9.21	12.55	12.27
05/15/07	96.68	35.48	60.46	60.38	07/05/07	32.91	15.81	16.23	16.12	8/25/2007	23.22	9.20	13.07	12.77
05/16/07	87.62	48.18	38.49	34.89	07/06/07	34.44	18.67	15.20	15.20	8/26/2007	21.68	9.21	11.52	11.22
05/17/07	81.02	55.78	24.30	24.31	07/07/07	32.40	16.19	15.30	15.20	8/27/2007	21.20	9.20	11.33	11.02
05/18/07	95.29	41.90	52.58	52.11	07/08/07	38.83	22.78	15.30	15.20	8/28/2007	24.10	8.24	15.05	13.78
05/19/07	89.35	28.44	60.05	59.84	07/09/07	38.51	13.15	24.56	24.33	8/29/2007	20.15	9.06	10.08	9.64
05/20/07	87.77	29.95	56.89	56.55	07/10/07	36.95	9.29	27.00	26.79	8/30/2007	18.55	8.96	8.72	8.17
05/21/07	89.54	30.24	58.43	58.22	07/11/07	32.67	14.12	17.63	17.57	8/31/2007	20.99	9.01	11.17	10.67

Table D-6

FOP Spill at Lower Monumental

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	37.16	36.56	0.00	0.00	05/22/07	83.68	60.42	22.46	23.01	7/12/2007	34.61	16.65	17.13	17.10
04/02/07	59.26	58.66	0.00	0.00	05/23/07	72.78	48.79	23.06	23.55	7/13/2007	32.79	15.46	16.54	17.10
04/03/07	44.08	23.12	20.31	20.46	05/24/07	69.50	45.91	22.78	23.60	7/14/2007	32.45	14.66	17.13	17.10
04/04/07	38.89	16.49	21.53	21.60	05/25/07	72.01	48.47	22.64	23.60	7/15/2007	34.40	17.10	16.51	17.10
04/05/07	36.41	12.17	23.34	23.50	05/26/07	64.40	40.85	22.70	23.60	7/16/2007	33.20	15.33	17.10	17.10
04/06/07	32.59	12.73	19.06	19.16	05/27/07	53.31	30.91	21.62	22.29	7/17/2007	29.09	11.66	16.78	16.78
04/07/07	34.76	11.38	22.53	22.45	05/28/07	57.68	35.83	20.88	21.50	7/18/2007	29.82	11.85	17.13	17.10
04/08/07	38.62	11.40	26.43	26.60	05/29/07	61.57	39.35	21.50	21.50	7/19/2007	27.43	11.70	15.07	14.98
04/09/07	47.00	20.09	26.24	26.40	05/30/07	56.83	34.68	21.24	22.00	7/20/2007	29.83	12.97	16.13	16.10
04/10/07	52.35	25.06	26.43	26.60	05/31/07	56.01	32.20	23.02	23.06	7/21/2007	30.33	14.57	14.94	14.99
04/11/07	47.62	23.17	23.61	26.60	06/01/07	50.58	27.31	22.37	23.14	7/22/2007	25.16	11.45	12.87	12.77
04/12/07	49.20	21.85	26.61	26.60	06/02/07	53.82	30.49	22.54	22.60	7/23/2007	25.07	11.30	12.79	12.68
04/13/07	49.88	22.22	26.71	26.60	06/03/07	52.56	29.90	21.98	22.60	7/24/2007	27.75	11.31	15.52	15.70
04/14/07	47.50	23.60	23.22	28.87	06/04/07	55.08	31.74	22.52	22.60	7/25/2007	25.33	11.30	13.23	13.13
04/15/07	44.28	13.95	29.60	29.80	06/05/07	54.37	31.95	21.76	22.60	7/26/2007	24.36	11.58	11.80	11.88
04/16/07	49.15	18.64	29.60	29.80	06/06/07	53.04	29.61	22.51	22.60	7/27/2007	29.43	14.82	13.56	13.45
04/17/07	51.13	22.12	28.22	28.47	06/07/07	58.09	35.14	22.23	23.06	7/28/2007	28.34	12.94	14.68	14.64
04/18/07	40.86	15.85	24.17	24.44	06/08/07	51.45	27.55	23.18	23.35	7/29/2007	25.76	11.30	13.62	13.47
04/19/07	48.18	21.77	25.53	25.69	06/09/07	51.15	27.84	22.57	23.14	7/30/2007	29.42	11.51	16.88	16.96
04/20/07	44.03	18.22	25.12	25.23	06/10/07	51.68	27.67	23.15	23.14	7/31/2007	25.48	11.34	13.28	13.12
04/21/07	49.88	25.83	23.40	23.60	06/11/07	51.07	28.03	22.22	23.14	8/1/2007	28.52	8.63	18.91	14.53
04/22/07	39.26	15.15	23.40	23.60	06/12/07	63.80	39.85	23.15	23.14	8/2/2007	29.79	12.12	16.58	16.35
04/23/07	41.70	17.59	23.40	23.60	06/13/07	55.35	31.97	22.50	23.37	8/3/2007	24.38	11.36	12.15	12.02
04/24/07	47.19	23.08	23.40	23.60	06/14/07	52.29	27.30	24.00	23.91	8/4/2007	25.37	11.33	13.12	13.03
04/25/07	44.79	21.99	21.83	22.64	06/15/07	47.73	24.44	22.57	23.29	8/5/2007	25.18	11.33	12.99	12.82
04/26/07	50.98	28.80	21.43	21.50	06/16/07	42.53	18.86	22.88	23.06	8/6/2007	24.40	11.68	11.84	12.02
04/27/07	54.73	33.57	20.32	20.22	06/17/07	45.23	22.55	21.97	23.06	8/7/2007	23.97	11.30	11.80	11.60
04/28/07	53.37	34.04	18.70	18.70	06/18/07	39.40	15.50	23.05	23.06	8/8/2007	23.69	11.34	11.36	11.20
04/29/07	60.64	41.10	18.70	18.70	06/19/07	35.02	12.00	22.28	22.32	8/9/2007	26.50	11.30	14.28	14.16
04/30/07	71.29	53.30	17.20	17.14	06/20/07	43.09	18.97	23.01	23.06	8/10/2007	26.43	11.36	14.16	14.18
05/01/07	85.70	69.69	15.22	15.30	06/21/07	33.37	16.08	16.49	16.50	8/11/2007	26.39	11.31	14.25	14.05
05/02/07	83.68	65.23	17.52	14.52	06/22/07	44.81	27.01	17.13	17.10	8/12/2007	23.45	11.29	11.30	11.10
05/03/07	92.11	75.25	16.01	16.23	06/23/07	37.95	20.49	16.63	17.10	8/13/2007	25.40	11.33	13.18	13.00
05/04/07	86.39	64.22	21.44	21.50	06/24/07	33.94	16.06	17.10	17.10	8/14/2007	23.52	12.17	10.50	11.16
05/05/07	81.28	58.94	21.40	21.50	06/25/07	34.44	17.40	16.30	16.74	8/15/2007	22.33	11.45	10.06	10.01
05/06/07	69.31	46.97	21.42	21.50	06/26/07	28.83	12.16	15.95	15.92	8/16/2007	24.31	11.32	12.20	12.02
05/07/07	65.89	42.13	22.78	22.97	06/27/07	29.73	12.22	16.66	16.67	8/17/2007	21.88	11.35	9.65	9.50
05/08/07	63.67	39.60	23.21	23.23	06/28/07	32.94	15.04	17.11	17.10	8/18/2007	21.82	11.31	9.77	9.58
05/09/07	66.16	45.01	20.25	20.22	06/29/07	35.80	18.55	16.58	17.10	8/19/2007	18.77	11.36	6.56	6.42
05/10/07	77.90	58.53	18.60	18.70	06/30/07	33.58	15.61	17.13	17.10	8/20/2007	21.86	12.35	8.66	8.56
05/11/07	92.43	73.05	18.60	18.70	07/01/07	33.67	15.93	16.91	17.10	8/21/2007	24.05	11.43	11.81	11.74
05/12/07	94.60	76.57	17.15	17.28	07/02/07	29.60	11.64	17.12	17.10	8/22/2007	21.75	11.32	9.50	9.31
05/13/07	95.28	79.73	14.71	15.30	07/03/07	33.48	15.85	16.96	17.10	8/23/2007	17.07	11.34	4.99	4.83
05/14/07	98.36	81.35	16.09	18.66	07/04/07	31.50	13.46	17.13	17.10	8/24/2007	23.54	11.30	11.50	11.30
05/15/07	93.73	72.49	20.33	21.50	07/05/07	32.55	15.03	16.75	17.10	8/25/2007	20.82	11.33	8.76	8.59
05/16/07	87.73	65.15	21.61	22.00	07/06/07	34.39	16.59	17.10	17.10	8/26/2007	22.03	11.30	9.88	9.68
05/17/07	80.70	58.40	21.41	22.60	07/07/07	33.84	16.60	16.39	16.86	8/27/2007	22.18	11.31	10.14	9.95
05/18/07	92.56	69.63	22.11	22.60	07/08/07	39.27	21.40	17.16	17.10	8/28/2007	22.41	11.31	10.31	10.12
05/19/07	87.91	65.31	21.69	22.60	07/09/07	37.48	19.83	16.80	17.10	8/29/2007	20.50	11.08	8.46	8.04
05/20/07	85.78	61.66	23.35	24.00	07/10/07	37.01	19.20	17.10	17.10	8/30/2007	18.79	11.35	6.67	6.51
05/21/07	85.85	62.16	22.67	23.30	07/11/07	33.35	15.76	16.75	17.00	8/31/2007	20.40	11.33	8.28	8.11

Table D-7

FOP Spill at Little Goose														
Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	40.13	39.73	0.00	0.00	05/22/07	83.67	57.75	25.23	25.10	7/12/2007	33.04	22.14	10.15	9.91
04/02/07	51.39	50.99	0.00	0.00	05/23/07	71.81	49.48	21.63	21.54	7/13/2007	34.16	23.43	10.16	10.25
04/03/07	42.00	28.90	12.73	12.60	05/24/07	70.13	48.53	20.95	21.04	7/14/2007	32.55	22.17	9.87	9.77
04/04/07	38.58	26.15	12.03	11.57	05/25/07	72.93	50.61	21.73	21.88	7/15/2007	34.69	23.65	10.51	10.41
04/05/07	34.98	23.75	10.82	10.49	05/26/07	62.46	43.06	18.70	18.74	7/16/2007	34.52	23.48	10.41	10.35
04/06/07	31.63	21.69	9.51	9.49	05/27/07	54.61	37.67	16.37	16.38	7/17/2007	28.36	19.34	8.49	8.51
04/07/07	36.03	24.75	10.88	10.81	05/28/07	57.38	39.43	17.19	17.21	7/18/2007	29.84	20.29	8.80	8.95
04/08/07	37.09	25.62	11.06	11.13	05/29/07	59.95	41.38	17.99	17.98	7/19/2007	28.58	19.37	8.63	8.57
04/09/07	45.67	31.51	13.78	13.70	05/30/07	56.70	38.99	17.02	17.01	7/20/2007	29.93	20.46	8.94	8.98
04/10/07	51.37	35.41	15.57	15.41	05/31/07	55.42	38.18	16.61	16.63	7/21/2007	31.46	21.46	9.48	9.44
04/11/07	46.83	24.67	21.70	14.05	06/01/07	52.32	35.97	15.68	15.70	7/22/2007	26.33	17.88	7.95	7.90
04/12/07	46.54	32.03	13.96	13.96	06/02/07	54.20	37.27	16.22	16.26	7/23/2007	24.98	16.83	7.40	7.49
04/13/07	49.60	35.86	13.35	14.88	06/03/07	52.14	36.17	15.34	15.64	7/24/2007	28.52	19.36	8.65	8.56
04/14/07	45.20	31.01	13.80	13.56	06/04/07	56.31	38.58	17.10	16.89	7/25/2007	24.59	16.62	7.40	7.38
04/15/07	42.71	29.45	12.90	12.81	06/05/07	55.65	38.40	16.58	16.70	7/26/2007	26.22	17.75	7.94	7.86
04/16/07	48.48	33.66	14.40	14.54	06/06/07	53.16	36.49	15.97	15.95	7/27/2007	29.39	20.02	8.78	8.82
04/17/07	46.70	32.08	14.23	14.01	06/07/07	58.05	39.83	17.64	17.42	7/28/2007	29.52	20.12	8.81	8.86
04/18/07	42.06	29.18	12.46	12.62	06/08/07	52.58	36.24	15.82	15.77	7/29/2007	27.77	18.93	8.37	8.33
04/19/07	46.66	32.06	14.04	14.00	06/09/07	52.85	36.33	15.95	15.86	7/30/2007	28.09	19.12	8.38	8.43
04/20/07	45.31	31.00	13.80	13.59	06/10/07	52.66	36.27	15.71	15.80	7/31/2007	27.12	18.37	7.98	8.14
04/21/07	48.38	33.46	14.53	14.51	06/11/07	52.30	36.01	15.72	15.69	8/1/2007	30.81	20.83	9.10	9.24
04/22/07	41.48	28.54	12.54	12.45	06/12/07	63.32	43.76	18.86	19.00	8/2/2007	27.95	19.07	8.36	8.38
04/23/07	42.63	29.37	12.86	12.79	06/13/07	56.78	39.30	16.90	17.03	8/3/2007	24.71	16.62	7.40	7.41
04/24/07	45.85	31.70	13.75	13.76	06/14/07	53.88	37.00	16.30	16.16	8/4/2007	26.03	17.50	7.82	7.81
04/25/07	45.97	31.84	13.55	13.79	06/15/07	48.08	33.00	14.52	14.42	8/5/2007	26.30	17.65	7.88	7.89
04/26/07	49.79	34.19	15.10	14.94	06/16/07	44.40	30.38	13.35	13.32	8/6/2007	25.45	17.20	7.55	7.64
04/27/07	53.61	37.09	16.10	16.08	06/17/07	46.10	31.71	13.80	13.83	8/7/2007	24.81	16.63	7.40	7.44
04/28/07	52.71	36.34	15.93	15.81	06/18/07	40.70	27.94	12.19	12.21	8/8/2007	24.99	16.81	7.40	7.50
04/29/07	59.49	38.13	20.90	21.00	06/19/07	38.10	26.15	11.33	11.43	8/9/2007	27.45	18.52	8.10	8.23
04/30/07	69.93	43.84	25.68	26.26	06/20/07	43.33	29.54	12.98	13.00	8/10/2007	25.07	17.15	7.40	7.52
05/01/07	82.79	55.40	26.92	27.55	06/21/07	34.39	23.63	10.29	10.32	8/11/2007	26.30	17.97	7.73	7.89
05/02/07	83.20	56.13	26.55	27.21	06/22/07	43.40	29.79	12.95	13.02	8/12/2007	25.50	17.42	7.40	7.65
05/03/07	91.41	65.18	25.66	26.60	06/23/07	39.04	26.65	11.87	11.71	8/13/2007	22.48	8.21	13.58	6.74
05/04/07	86.25	60.10	25.57	26.31	06/24/07	35.40	24.18	10.68	10.62	8/14/2007	23.30	5.00	17.55	6.99
05/05/07	79.27	53.93	24.85	25.62	06/25/07	34.18	22.95	10.64	10.24	8/15/2007	23.69	5.00	18.18	7.11
05/06/07	69.61	44.85	24.06	24.53	06/26/07	31.77	21.48	9.73	9.53	8/16/2007	22.38	5.00	16.83	6.71
05/07/07	65.75	40.64	24.31	24.88	06/27/07	30.70	20.70	9.30	9.21	8/17/2007	22.90	8.60	13.78	6.87
05/08/07	63.42	37.09	25.06	25.64	06/28/07	32.90	22.47	9.86	9.87	8/18/2007	20.94	14.09	6.35	6.28
05/09/07	64.27	38.35	24.73	25.16	06/29/07	37.00	25.42	11.07	11.10	8/19/2007	18.53	12.40	5.60	5.56
05/10/07	77.02	50.96	25.13	25.59	06/30/07	33.08	22.52	10.04	9.92	8/20/2007	23.03	15.25	6.89	6.90
05/11/07	90.92	64.68	25.65	26.58	07/01/07	35.29	24.16	10.66	10.59	8/21/2007	24.42	16.43	7.40	7.32
05/12/07	90.75	65.88	24.20	25.08	07/02/07	29.15	19.81	8.70	8.75	8/22/2007	22.13	14.88	6.65	6.64
05/13/07	95.08	72.42	22.01	22.80	07/03/07	36.18	24.72	10.83	10.85	8/23/2007	18.81	12.68	5.60	5.64
05/14/07	95.72	71.06	23.78	24.73	07/04/07	34.89	23.69	10.48	10.47	8/24/2007	24.99	16.92	7.40	7.50
05/15/07	90.74	65.05	25.07	25.81	07/05/07	32.45	22.28	9.59	9.74	8/25/2007	20.63	13.99	6.13	6.19
05/16/07	87.20	61.41	25.10	25.67	07/06/07	34.93	23.92	10.50	10.48	8/26/2007	22.26	15.10	6.65	6.68
05/17/07	79.61	55.08	23.78	23.88	07/07/07	35.38	24.35	10.51	10.61	8/27/2007	23.63	16.07	7.03	7.09
05/18/07	92.63	64.90	27.08	27.15	07/08/07	39.42	27.08	11.77	11.83	8/28/2007	22.34	14.97	6.58	6.70
05/19/07	87.23	60.58	26.08	26.17	07/09/07	37.69	25.89	11.26	11.31	8/29/2007	20.20	13.58	5.98	6.05
05/20/07	85.40	59.03	25.80	25.62	07/10/07	37.67	25.81	11.23	11.30	8/30/2007	18.83	12.79	5.60	5.65
05/21/07	84.60	58.57	25.40	25.38	07/11/07	34.09	22.67	10.61	10.23	8/31/2007	22.04	14.89	6.57	6.38

Table D-8

FOP Spill at Lower Granite

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/07	39.93	39.63	0.00	0.00	05/22/07	84.81	64.48	19.80	20.00	7/12/2007	34.72	16.60	17.73	18.00
04/02/07	51.82	51.48	0.04	0.00	05/23/07	75.16	54.87	19.70	20.00	7/13/2007	33.13	14.84	17.76	18.00
04/03/07	42.05	21.86	19.89	20.00	05/24/07	74.22	54.05	19.79	20.00	7/14/2007	33.57	15.31	17.82	18.00
04/04/07	38.18	18.05	19.84	20.00	05/25/07	73.07	52.73	19.91	20.00	7/15/2007	36.05	17.76	17.84	18.00
04/05/07	36.60	15.86	20.01	20.00	05/26/07	64.70	44.35	19.84	20.00	7/16/2007	32.22	14.08	17.78	18.00
04/06/07	34.43	13.78	20.13	20.00	05/27/07	58.18	37.81	19.83	20.00	7/17/2007	31.08	12.88	17.69	18.00
04/07/07	35.56	15.07	20.12	20.00	05/28/07	57.48	37.18	19.93	20.00	7/18/2007	30.15	12.66	17.20	17.64
04/08/07	38.96	18.58	20.06	20.00	05/29/07	62.59	42.19	19.88	20.00	7/19/2007	28.89	11.98	16.48	16.74
04/09/07	46.47	25.92	20.13	20.00	05/30/07	58.53	38.39	19.79	20.00	7/20/2007	30.50	12.04	17.81	18.00
04/10/07	50.88	30.16	20.14	20.00	05/31/07	57.34	36.93	19.97	20.00	7/21/2007	29.46	12.05	16.77	17.12
04/11/07	48.70	28.09	20.04	20.00	06/01/07	55.65	35.24	19.90	20.00	7/22/2007	26.93	12.04	14.38	14.92
04/12/07	50.13	29.77	20.01	20.00	06/02/07	54.36	34.34	19.65	20.00	7/23/2007	27.96	12.04	15.47	16.06
04/13/07	49.95	29.69	19.94	20.00	06/03/07	52.80	32.50	19.77	20.00	7/24/2007	27.31	12.07	14.73	15.35
04/14/07	47.22	27.10	19.83	20.00	06/04/07	56.25	36.13	19.74	20.00	7/25/2007	26.97	12.03	14.42	14.95
04/15/07	45.24	24.98	19.96	20.00	06/05/07	57.82	37.36	19.78	20.00	7/26/2007	26.81	12.07	14.46	15.03
04/16/07	49.48	29.20	19.98	20.00	06/06/07	54.88	34.68	19.83	20.00	7/27/2007	29.28	12.00	16.98	17.23
04/17/07	48.08	27.45	19.85	20.00	06/07/07	57.88	37.69	19.81	20.00	7/28/2007	28.39	12.05	15.91	16.31
04/18/07	46.47	25.96	20.00	20.00	06/08/07	52.82	32.46	19.98	20.00	7/29/2007	27.54	12.43	14.66	15.65
04/19/07	47.82	27.40	19.97	20.00	06/09/07	53.59	33.47	19.83	20.00	7/30/2007	29.41	12.37	16.68	17.00
04/20/07	46.28	25.90	20.00	20.00	06/10/07	52.37	32.26	19.80	20.00	7/31/2007	28.53	12.05	15.83	16.17
04/21/07	47.35	27.15	19.91	20.00	06/11/07	54.68	34.52	19.74	20.00	8/1/2007	30.53	12.12	17.90	18.00
04/22/07	45.27	25.01	19.95	20.00	06/12/07	62.70	42.22	19.89	20.00	8/2/2007	27.36	12.08	14.93	15.45
04/23/07	46.08	25.52	19.98	20.00	06/13/07	57.59	37.17	19.86	20.00	8/3/2007	26.98	12.07	14.45	15.02
04/24/07	45.78	25.13	19.92	20.00	06/14/07	55.14	34.83	19.85	20.00	8/4/2007	26.08	12.09	13.49	14.08
04/25/07	48.93	28.70	19.86	20.00	06/15/07	47.50	27.07	19.84	20.00	8/5/2007	25.96	12.10	13.33	13.94
04/26/07	51.60	31.08	20.00	20.00	06/16/07	45.98	25.73	19.85	20.00	8/6/2007	26.91	12.00	14.61	15.10
04/27/07	53.85	33.59	19.90	20.00	06/17/07	45.69	25.25	19.93	20.00	8/7/2007	26.03	12.03	13.44	13.97
04/28/07	55.78	35.70	19.79	20.00	06/18/07	40.68	20.52	19.80	20.00	8/8/2007	25.80	12.03	13.28	13.81
04/29/07	60.95	40.71	19.95	20.00	06/19/07	37.48	17.20	19.85	20.00	8/9/2007	25.90	12.03	13.30	13.83
04/30/07	71.75	51.17	20.01	20.00	06/20/07	42.88	22.58	19.85	20.00	8/10/2007	25.65	12.04	13.19	13.73
05/01/07	83.01	62.56	19.93	20.00	06/21/07	37.38	18.81	18.13	18.00	8/11/2007	25.75	12.09	13.16	13.75
05/02/07	88.51	67.96	19.98	20.00	06/22/07	41.45	22.73	18.20	18.00	8/12/2007	25.57	12.16	12.90	13.55
05/03/07	94.03	73.65	20.01	20.00	06/23/07	39.88	21.47	18.03	18.00	8/13/2007	24.14	12.17	11.39	12.05
05/04/07	88.75	68.38	20.00	20.00	06/24/07	35.26	16.79	18.15	18.00	8/14/2007	23.36	12.18	10.57	11.25
05/05/07	80.91	60.74	19.88	20.00	06/25/07	33.63	15.06	18.12	18.00	8/15/2007	23.83	12.13	11.34	11.96
05/06/07	71.33	51.09	19.95	20.00	06/26/07	31.38	13.13	17.66	17.80	8/16/2007	22.69	12.04	10.35	10.89
05/07/07	67.30	46.96	19.91	20.00	06/27/07	30.79	12.07	18.28	18.00	8/17/2007	22.59	12.06	9.88	10.44
05/08/07	65.94	45.25	19.90	20.00	06/28/07	32.98	14.47	18.12	18.00	8/18/2007	22.01	12.12	9.30	9.91
05/09/07	69.02	48.69	19.80	20.00	06/29/07	36.02	17.38	18.25	18.00	8/19/2007	21.06	12.11	8.37	8.98
05/10/07	77.97	57.71	19.80	20.00	06/30/07	36.71	18.11	18.17	18.00	8/20/2007	21.68	6.66	14.50	9.66
05/11/07	93.23	72.99	19.78	20.00	07/01/07	33.33	14.91	18.05	18.00	8/21/2007	22.01	5.00	16.36	9.86
05/12/07	93.30	72.94	19.78	20.00	07/02/07	31.24	12.68	18.02	18.00	8/22/2007	23.43	5.00	18.05	11.55
05/13/07	100.93	80.75	19.88	20.00	07/03/07	31.53	12.75	18.00	18.00	8/23/2007	21.44	7.11	13.75	9.37
05/14/07	99.19	79.04	19.71	20.00	07/04/07	32.74	14.30	17.93	18.00	8/24/2007	22.27	11.97	9.85	10.32
05/15/07	92.71	72.22	19.66	20.00	07/05/07	32.97	14.82	17.85	18.00	8/25/2007	22.42	11.97	9.85	10.32
05/16/07	90.04	69.50	19.74	20.00	07/06/07	35.98	17.40	18.13	18.00	8/26/2007	22.22	11.99	9.95	10.44
05/17/07	85.86	65.73	19.69	20.00	07/07/07	34.85	16.30	18.25	18.00	8/27/2007	22.41	12.03	9.94	10.48
05/18/07	92.71	72.42	19.79	20.00	07/08/07	40.46	22.21	17.95	18.00	8/28/2007	22.60	12.09	9.85	10.44
05/19/07	91.11	70.93	19.80	20.00	07/09/07	34.67	16.21	18.08	18.00	8/29/2007	21.56	12.08	9.10	9.67
05/20/07	87.99	67.97	19.72	20.00	07/10/07	39.72	21.18	17.95	18.00	8/30/2007	20.64	12.13	8.20	8.83
05/21/07	87.02	66.75	19.83	20.00	07/11/07	32.70	14.39	17.80	18.00	8/31/2007	20.83	12.12	8.19	8.81

TABLE D-9**Project Specific BiOp Spill Volumes in KAF**

Year	Lower Granite	Little Goose	Lower Monumental	Ice Harbor	McNary	John Day	The Dalles	Bonneville	Yearly Totals
2007	5,283	4,071	5,513	7,915	26,001	15,350	22,007	27,084	113,224
2006	5,612	5,684	6,003	11,493	26,359	15,007	24,671	24,042	118,871
2005	2,806	2,306	2,868	8,932	25,079	14,445	18,496	24,195	99,127
2004	715	631	948	11,188	10,488	13,943	19,440	25,216	82,569
2003	3,098	2,820	4,424	9,945	9,094	13,279	20,451	31,732	94,843
2002	3,100	3,770	0	13,408	10,497	17,863	24,122	30,803	103,562
2001	2,992	2,356	3,786	9,153	325	803	4,821	5,527	29,762
2000	3,605	3,039	4,856	14,022	9,297	18,500	21,647	25,417	100,383
Average	3,401	3,084	3,550	10,757	14,643	13,649	19,457	24,252	

TABLE D-10

Total Project Flow and FOP Spill Volumes in KAF - April through August, 2007									
Volume Flow, KAF	Lower Granite	Little Goose	Lower Monumental	Ice Harbor	McNary	John Day	The Dalles	Bonneville	Total
Outflow	13,709	13,415	13,399	13,613	59,053	56,371	55,179	58,939	283,680
Generation Flow	8,305	9,084	7,695	5,416	31,694	40,650	31,418	28,665	162,927
Actual Spill	5,266	4,153	5,458	7,950	26,017	15,331	22,010	26,990	113,174
FOP Spill	5,283	4,071	5,513	7,915	26,001	15,350	22,007	27,084	113,224

TABLE D-11

Average Project Flow and FOP Spill in kcfs - April through August, 2007									
Average Flow, kcfs	Lower Granite	Little Goose	Lower Monumental	Ice Harbor	McNary	John Day	The Dalles	Bonneville	Total
Outflow	46	45	45	45	207	197	193	206	984
Generation Flow	28	30	26	18	111	142	110	100	565
Actual Spill	18	14	18	27	91	54	77	94	393
FOP Spill	18	14	18	26	91	54	77	95	393

TABLE D-12

**Total Project Flow and BiOp Spill Volumes in KAF
April through August**

	Total Project Outflow	Generation Flow	Actual Spill	FOP Spill
2007	283,680	162,927	113,174	113,224
2006	406,601	238,580	160,146	118,878
2005	274,635	167,402	99,333	99,127
2004	280,692	190,388	82,551	82,569
2003	311,458	206,927	98,001	94,843
2002	357,155	225,072	125,688	103,522
2001	182,996	164,738	11,460	29,762
2000	327,334	209,851	96,931	100,383
Average	303,069	195,736	98,410	92,788